

SURVEY ON FACTORS ASSOCIATED WITH CERVICAL CANCER AMONG FEMALE INDIVIDUALS IN BANGLADESH



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ABSTRACT

Cervical cancer is a health crisis affecting women and their families worldwide. Globally 604,237 women were diagnosed with cervical cancer worldwide, representing 6.5% of all cancers in women in 2020. This survey aims to resolve associative factors of Cervical Cancer among female individuals in Bangladesh. A cross-sectional study was conducted among female individuals aged between 30-70 years & above in Specialized Cancer Hospital, Dhanmondi 27 in Dhaka, from January 2014 to July 2014. There were 180 female participants in our study from SCH, and their age range was 30-70 years & above. The socio-demographic profile, risk factors related status, cervical cancer-related status & related psychological status were also revealed. Almost half of the respondents, 56.1% (n=101), were in the age group of fewer than 53 years, which is the reproductive age group. And rest of the respondents comprised more than an equal 55 years. Almost eight in every ten female respondents are suffering from Cervical Cancer. The results indicate that there are associations between cervical cancer and multiple variables such as marital status, occupation of husbands, monthly income, parity, HTN, DM, thyroid abnormalities, source of knowledge about cervical cancer, knowledge of cervical cancer screening & HPV vaccine, HPV vaccination status, menstrual cycle status, vaginal discharge, genital hygiene during menstruation & in a normal day, duration of cervical cancer & treatment and few psychological states of the respondents which are highly significant as $P < 0.00$.

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INTRODUCTION

Globally, cervical cancer is the fourth most common cancer among women, with an estimated 528,000 new cases in 2012 (Ferlay & Soerjomataram, 2015). Human papillomavirus (HPV) is the necessary explanation for cervical cancer (Walboomers & Jacobs, 1999). The Government of Bangladesh (GOB) has developed a cervical cancer screening program up to the district and sub-district (Upazila) level (Nessa & Hussain, 2010). Epidemiological studies conducted during the past 30 years have consistently indicated that measures of sexual intercourse strongly influence cervical cancer risk, the number of sexual partners, age at first sexual intercourse, and sexual behaviour of the women's male partners (Remschmidt & Kaufmann, 2013).

LITERATURE REVIEW

In Bangladesh, cervical cancer is the 2nd most common cancer among women, with age-standardized rates (ASRs) for incidence more minor than the global average (10.6 vs 13.1/100,000 women) and mortality higher than the worldwide average statistics (7.1 vs 6.9/100,000 women) (Ferlay & Ervik, 2018). A large majority of the global burden of cervical cancer occurs in less developed regions, where almost nine in ten (87%) deaths are due to cervical cancer (Ferlay & Soerjomataram, 2015). HPV-16 and HPV-18 account for about 70% of global cervical cancer cases, with HPV-16 causing about 55–60% and HPV-18 about 10–15% (DeSanjose & Quint, 2010). HPV-16 is the most typical high-risk HPV genotype detected in Bangladeshi women (Nahar & Sultana, 2014). The age-adjusted five-year relative survival rate for women treated for invasive cervix carcinoma is 71.2% (Ries & Melbert, 2007).

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MATERIALS AND METHODS

This study aims to determine the prevalence of Cervical Cancer & associated risk factors among female individuals. A cross-sectional study was conducted among female individuals aged between 30-70 years & above in Specialized Cancer Hospital, Dhanmondi 27 in Dhaka, from January 2014 to July 2014. We prepared a self-administered questionnaire. Samples were selected purposively & the survey included closed multiple-choice questions. The statistical analyses were performed using SPSS version 26 & MS Excel-2013.

RESULTS AND DISCUSSIONS

There were 180 female participants in our study from SCH, and their age range was 30-70 years & above. The socio-demographic profile, risk factors related status, cervical cancer-related status & related psychological status were also revealed.

Table 1. Distribution of the respondents according to the socio-demographic factors (n=180)

Variables	Number(n)	Percent (%)	Mean $\pm$ SD
Age			
< 53 years	101	56.1	52.8 $\pm$ 12.13
$\geq$ 53 years	79	43.9	
Marital status			
Married	146	81.1	
Separated	21	11.7	
Unmarried+ Widowed	13	7.2	
Monthly income			
5000-55000 TK	136	75.6	44085 $\pm$ 30049
55001-160000 TK	44	24.4	
Age of Marriage			
<35	127	70.6	31.39 $\pm$ 13.7
$\geq$ 35	53	29.4	
Parity			
Nulli para	22	12.2	1.86 $\pm$ 0.66
Parity 1-2	45	25.0	
Parity 3-5	94	52.2	
Parity 6 & above	19	10.6	
Age of first delivery			
<25	118	65.6	22.37 $\pm$ 6.6
$\geq$ 25	62	34.4	

Almost half of the respondents, 56.1% (n=101), were in the age group of fewer than 53 years, which is the reproductive age group. And rest of the respondents comprised more than an equal 55 years. Almost all the participants were married, 81.1% (n=146). 52.2% (n=94) of the respondents had 3-5 children's, 25% (n=45) had 1-2 children's, 12.2% were nulliparous & 10.6% had 6 or more than 6 children. 75.6% (n=136) participant's monthly family income were at & below 55,000 Bangladeshi taka. Rest other 24.4% (n=44) participant's monthly incomes were found up to 1, 60,000 Bangladeshi taka (Table 1).

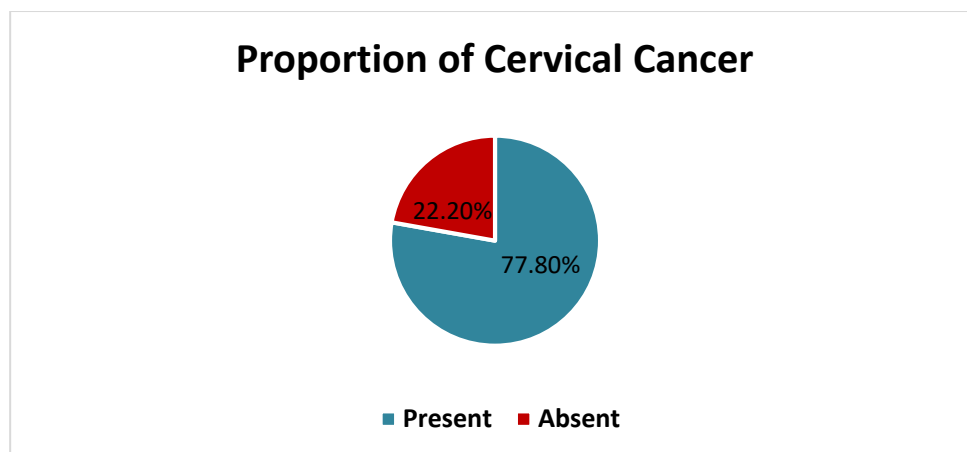


Figure 1. Graphic representation of the proportion of cervical cancer

Among the respondents 61.7% (n=111) had normal BMI, 19.4% (n=35) had over weight, 13.9% (n=25) were obese and 5% (n=9) were under the normal. Maximum of the respondents systolic & diastolic BP ranged between (120-140 mmHg) & (80-90 mmHg) (Figure 2 & 3). 66.7% (n=120) of the respondents were found hypertensive and 33.3% (n=60) were normotensive.

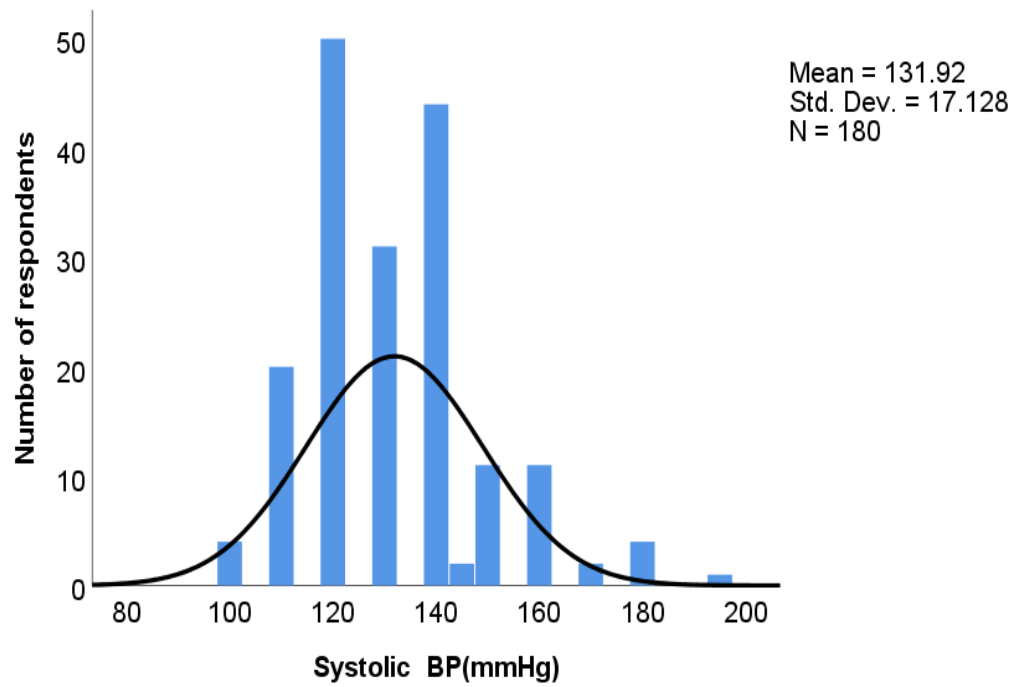


Figure 2. Graphic representation of the frequency of systolic blood pressure

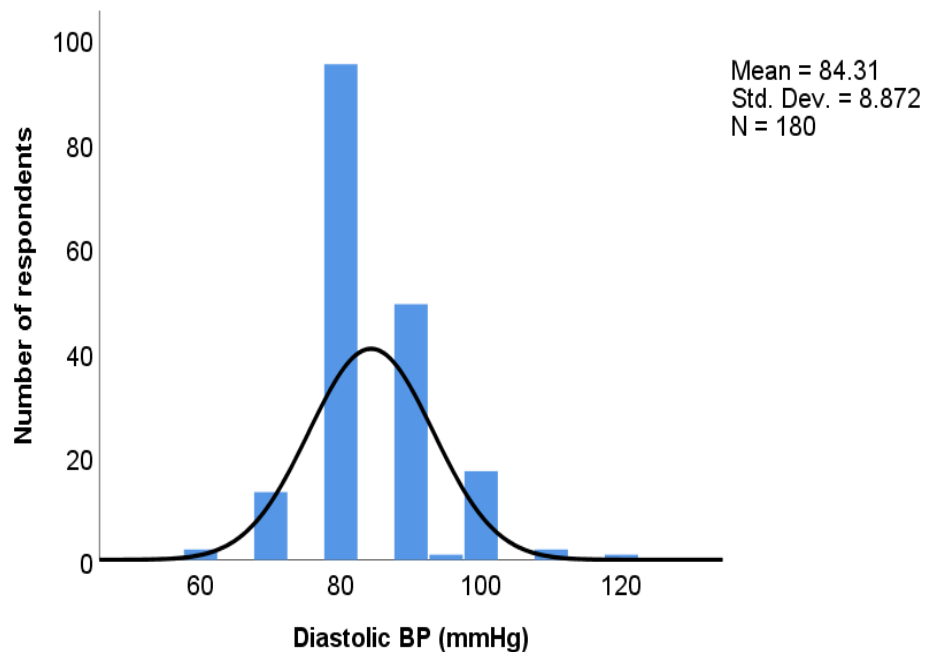


Figure 3. Graphic representation of the frequency of diastolic blood pressure

Table 2. Distribution of respondents according to the physical measurements (n=180)

Variables	Number(n)	Percent (%)	Mean±SD
Height			163.5±9.83
Weight			65.69±11.21
BMI			
Underweight	9	5	24.68±4.5
Normal weight	111	61.7	
Overweight	35	19.4	
Obese	25	13.9	
Hypertension related status			
Hypertensive	120	66.7	
Normotensive	60	33.3	
Status of Diabetes Mellitus			
Diabetic	119	66.1	
Non-diabetic	61	33.9	

Status of Thyroids abnormalities		
Hypothyroidism	66	36.7
Hyperthyroidism	114	63.3

Among the respondents 66.1% (n=119) were diabetic & 33.9% (n=61) were non diabetic. 36.7% (n=66) of respondents had hyperthyroidism and 63.3% (n=114) had hypothyroidism (Table 2).

Source of knowledge about Cervical Cancer

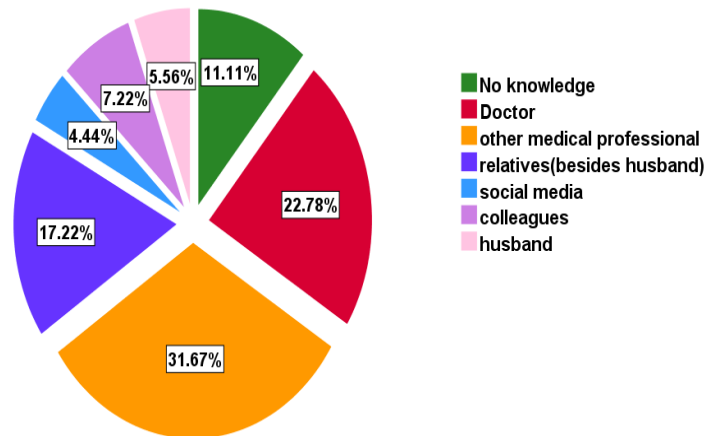


Figure 4. Graphic representation of the proportion of sources of knowledge about cervical cancer

Cervical cancer related status describes that, among the study subjects (n=180), 89% (n=160) of the respondents heard about cervical cancer. 31.7% (n=57) & 22.8% (n=41) of respondents came to know about cervical cancer from medical professionals & doctors, 17.2% (n=31) & 7.2% (n=13) from relatives & colleagues, 5.6% (n=10) & 4.4% (n=8) from husbands & social media (Figure 4).

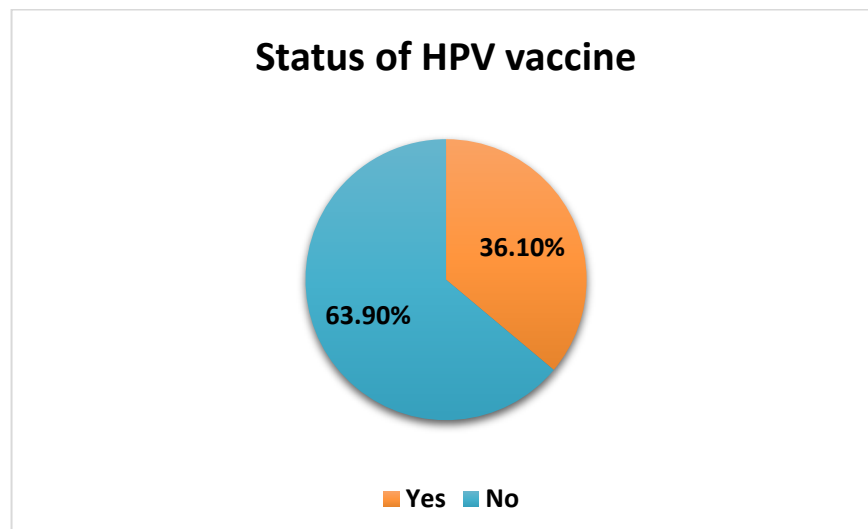


Figure 5. Graphic representation of the proportion of HPV vaccination status

About 67.2% (n=121) of respondents knew about cervical cancer screening & 18.9% (n=34) of total respondents underwent cervical cancer screening. Those who underwent screening among them 8.9% (n=16) did VIA test, 7.2% (n=13) did PAP-smear test & 2.8% (n=5) did HPV test. 63.9% (n=115) of respondents had knowledge about HPV vaccine and 36.1% (n=65) of respondents had taken the HPV vaccine (Figure 5). In regard to menstrual cycle status, 41.1% (n=74) were in menopausal status, 40% (n=72) had irregular cycle and 18% (n=34) had regular cycle. 29.4% (n=53) of respondents had complain of vaginal discharge. 77.8% (n=140) of respondents had been suffering from cervical cancer (Figure 1).

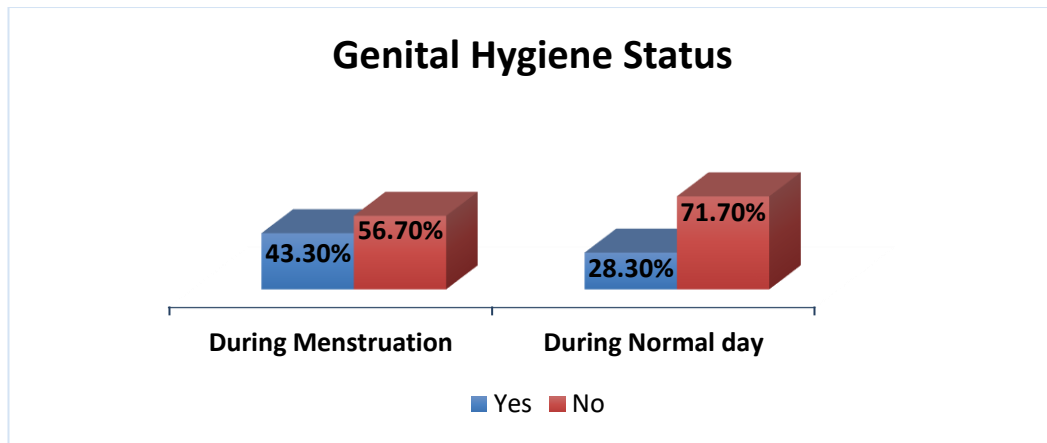


Figure 6. Graphic representation of the proportion of genital hygiene status

Among them, 76.7% (n=138) had been suffering for less than six years, and 23.3% (n=42) had been suffering for 6/more than six years. 43.3% (n=78) of respondents had a concern about genital hygiene during menstrual days, while 28.3% (n=51) had a concern during normal days (Figure 6).

Table 3. Distribution of the respondents according to their Cervical cancer-related status (n=180)

Variables	Number(n)	Percent (%)	Mean $\pm$ SD
The number of respondents who heard about cervical cancer			
Yes	160	88.9	
No	20	11.1	
Number of respondents introducer of cervical cancer			
Doctor	41	22.8	
Another medical professional	57	31.7	
Relatives (besides husband)	31	17.2	
Social media	8	4.4	
Colleagues	13	7.2	
Husband	10	5.6	
The number of respondents who heard about cervical cancer screening			
Yes	121	67.2	
No	59	32.8	
The number of respondents who underwent cervical cancer screening			
Yes	34	18.9	
No	146	81.1	
Number of respondents distributed of screening			
VIA test	16	8.9	
Pap-smear test	13	7.2	
HPV test	5	2.8	
The number of respondents knows about the HPV vaccine			
Yes	115	63.9	
No	65	36.1	
The number of respondents has taken the HPV vaccine			
Yes	65	36.1	
No	115	63.9	
Number of respondents' menstrual cycle status			
Regular	34	18.9	
Irregular	72	40.0	
Menopause	74	41.1	
The number of respondents have vaginal discharge			
Yes	53	29.4	
No	127	70.6	
Cervical cancer			
Present	140	77.8	
Absent	40	22.2	
A number of respondents have concern about genital hygiene during menstruation			
Yes	78	43.3	
No	102	56.7	
A number of respondents have concern about genital hygiene on a normal day			
Yes	51	28.3	
No	129	71.7	
Number of respondents duration of cervical cancer			
<6 years	138	76.7	4.95 $\pm$ 2.834
$\geq$ 6 years	42	23.3	
Number of respondents distribution of treatment			
Surgery	19	10.6	

Surgery with CT	48	26.7
Surgery with RT	32	17.8
Surgery with CT & RT	33	18.3
Only CT & RT	7	3.9

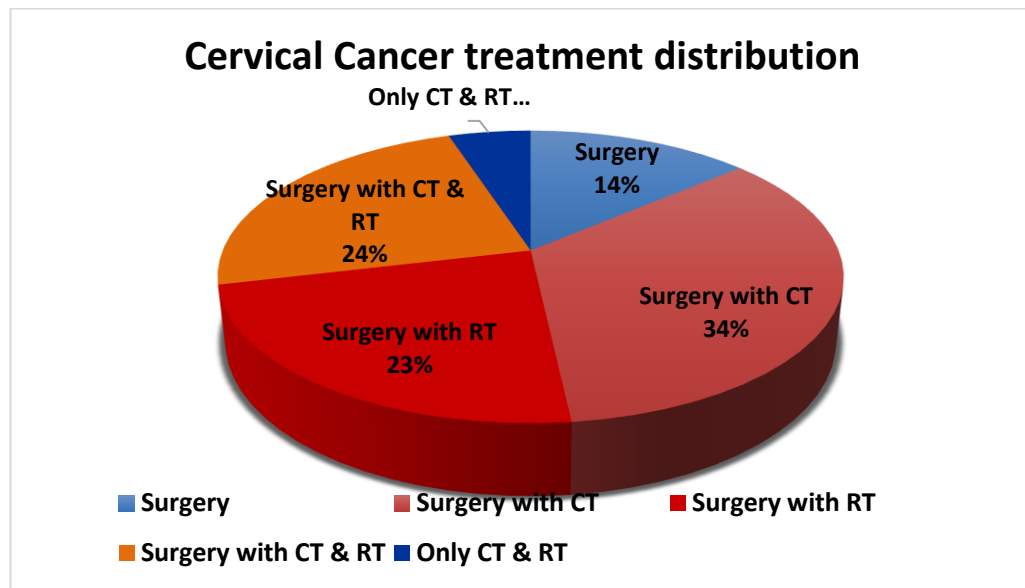


Figure 7. Graphic representation of the proportion of cervical cancer treatment distribution

10.6% (n=19) of cervical cancer patients underwent surgery while 18.3% (n=33) underwent surgery along with CT & RT; 26.7% (n=48) underwent for surgery with CT; 17.8% (n=32) underwent surgery with RT and rest of the 3.9% (n=7) took CT & RT only (Figure 7) (Table 3).

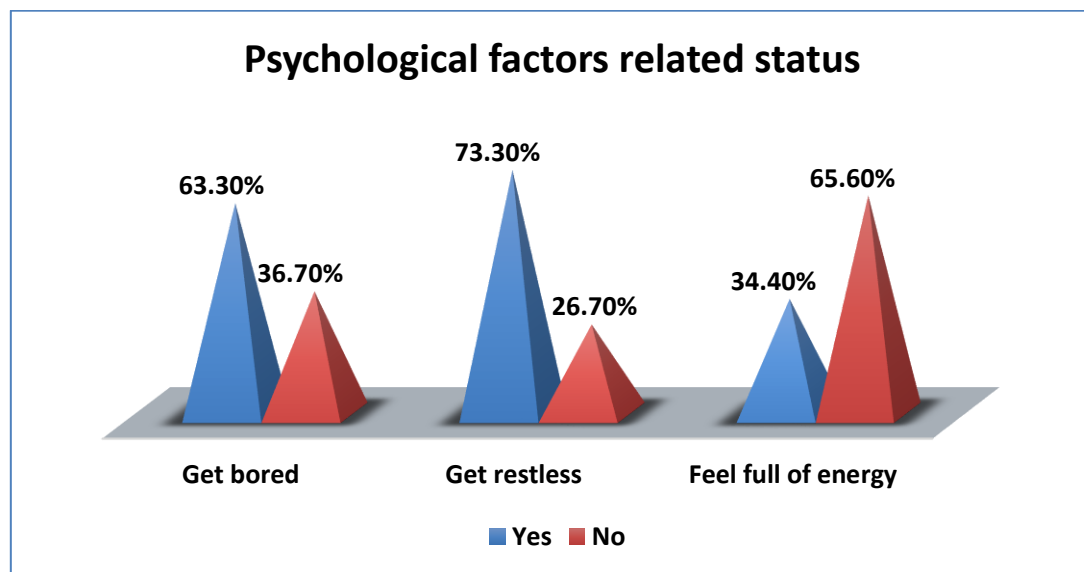


Figure 8. Graphic representation of the proportion of psychological status

Table 4. Distribution of the respondents according to their psychological factors (n=180)

Variables	Number(n)	Percent (%)
Number of respondents gets bored		
Yes	114	63.3
No	66	36.7
Number of respondents afraid about going bad		
Yes	104	57.8
No	76	42.2
Number of respondents feel happy most of the time		
Yes	89	49.4
No	91	50.6
Number of respondents feel helpless		
Yes	80	44.4
No	100	55.6
Number of respondents get restless and fidgety		

Yes	132	73.3
No	48	26.7
Number of respondents feel full of energy		
Yes	62	34.4
No	118	65.6
Number of respondents frequently feel like crying		
Yes	37	20.6
No	143	79.4

In regard to psychological factor, it was found that, 63.3% (n=114) often got bored, 57.8% (n=104) were afraid for something bad happen, 49.4% (n=89) felt happy most of the time, 44.4% (n=80) often felt helpless, 73.3% (n=132) often got restless and fidgety, 34.4% (n=62) felt full of energy, 20.6% (n=37) frequently felt like crying (Figure 8)(Table 4).

Table 5. Distribution of the respondents according to their factors associated with Cervical Cancer (n=180)

Variables	Cervical Cancer		t-value	p-value*	95% CI level
	Present Mean $\pm$ SD	Absent Mean $\pm$ SD			
Age	52.79 $\pm$ 12.1	52.15 $\pm$ 9.9	0.303	0.76	-3.5, 4.8
Monthly income	44085 $\pm$ 30049	29225 $\pm$ 12346	3.05	0.003*	5245.8, 24475.6
Age of marriage	31.39 $\pm$ 13.7	30.23 $\pm$ 11.08	0.49	0.623	-3.5, 5.8
Parity	1.86 $\pm$ 0.7	0.8 $\pm$ 0.8	8.9	0.000*	0.9, 1.35
Age of first delivery	22.37 $\pm$ 6.6	12.08 $\pm$ 11.6	7.24	0.000*	7.5, 13.1
Height	163.52 $\pm$ 9.8	162.72 $\pm$ 10.8	0.44	0.65	-2.8, 4.36
Weight	65.69 $\pm$ 11.21	62.68 $\pm$ 9.7	1.54	0.12	-0.8, 6.9
Systolic BP ^a	133.7 $\pm$ 17.9	125.7 $\pm$ 12.6	2.62	0.009*	1.97, 13.89
Diastolic BP	85.46 $\pm$ 8.6	80.25 $\pm$ 8.6	3.37	0.001*	2.16, 8.27
Duration of CCA ^b	4.95 $\pm$ 2.83	0.05 $\pm$ 0.32	10.89	0.000*	4.01, 5.79

a=Blood pressure, b=Cervical cancer *=Significant, P<0.05 is considered a significant level.

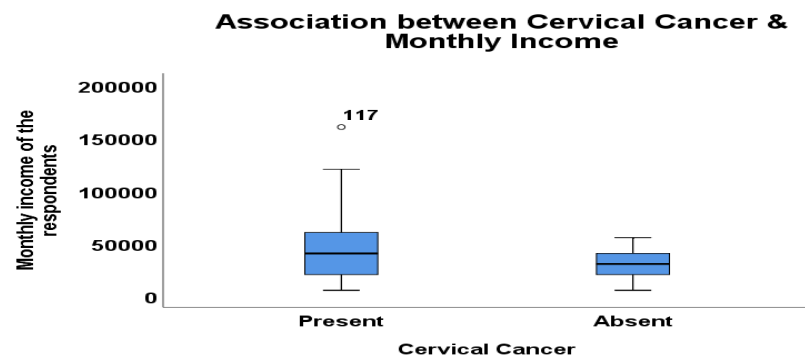


Figure 9. Graphic representation of the association between cervical cancer & monthly income

In this study, the t-value for the monthly income of the respondents was found to be 4.64, P<0.001 and 95% CI (5245.8; 24475.6) (Figure 9).

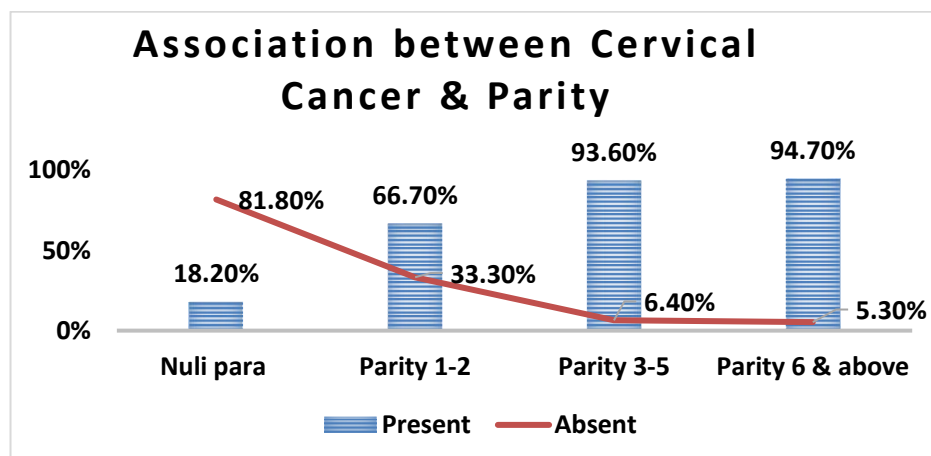


Figure 10. Graphic representation of the association between cervical cancer & parity

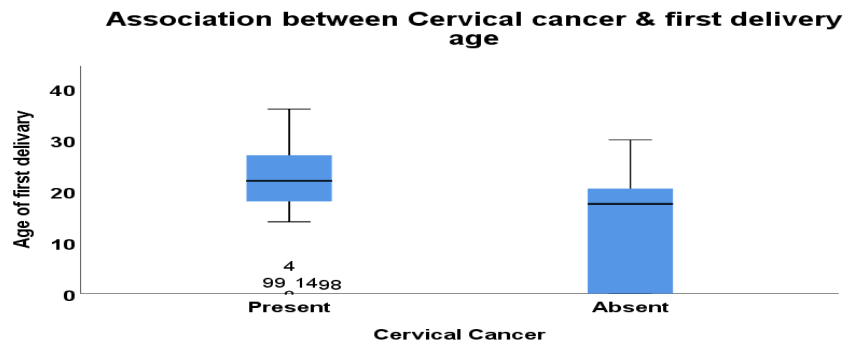


Figure 11. Graphic representation of the association between cervical cancer & first delivery age

In regard to parity (Figure 10) & age of first delivery (Figure 11) of the respondents t-value was found 8.9& 7.24, $P < 0.001$ and 95% CI (0.9; 1.35) & 95% CI (7.5; 13.1).

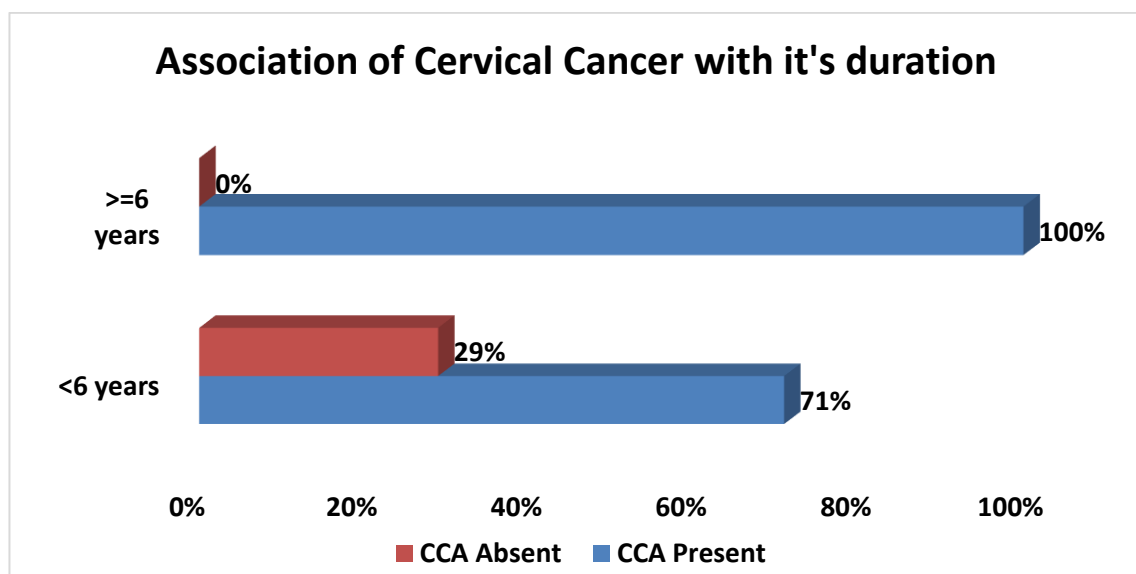


Figure 12. Graphic representation of the association between cervical cancer & its duration

We found that, t-value for last BP (systolic & diastolic) of the respondents was 2.62 & 3.37, $P < 0.001$ and 95% CI (1.97; 13.89) & 95% CI (2.16; 8.27). In case of duration of cervical cancer (Figure 12), t-value was found 10.89, $P < 0.001$ and 95% CI (4.01; 5.79) (Table 5).

Table 6. Distribution of the respondents according to their socio-demographic factors associated with Cervical Cancer (n=180)

Variables	Cervical Cancer		χ^2	p-value*
	Present n(%)	Absent n(%)		
Age				
<53 years	78(77.2%)	23(22.8%)	0.40	0.841
≥53 years	62(78.5%)	17(21.5%)		
Marital status				
Married & others	135(78.5%)	37(21.5%)	14.449	0.002*
Unmarried	5(62.5%)	3(37.5%)		
Monthly income				
5000-55000 TK	96(70.6%)	40(29.4%)	16.639	0.00*
55001-100000TK	42(100.0%)	0(0.0%)		
100001-160000TK	2(100.0%)	0(0.0%)		
Age of Marriage				
<35	96(75.6%)	31(24.4%)	1.194	0.275
≥35	44(83.0%)	9(17.0%)		
Parity				
Nuli para	4(18.2%)	18(81.8%)	65.228	0.000*
Parity 1-2	30(66.7%)	15(33.3%)		
Parity 3-5	88(93.6%)	6(6.4%)		
Parity 6 & above	18(94.7%)	1(5.3%)		

Age of first delivery				
<25	87(73.7%)	31(26.3%)	3.249	0.071
≥25	53(85.5%)	9(14.5%)		

*=Significant, P<0.05 is considered a level of significance

Table 7. Distribution of the respondents according to their biochemical factors associated with Cervical Cancer (n=180)

Variables	Cervical Cancer		χ^2	p-value*
	Present n(%)	Absent n(%)		
BMI				
Underweight	4(44.4%)	5(55.6%)	6.403	0.094
Normal weight	87(78.4%)	24(21.6%)		
Overweight	29(82.9%)	6(17.1%)		
Obese	20(80.0%)	5(20.0%)		
Hypertension				
Hypertensive	101(84.2%)	19(15.8%)	8.502	0.004*
Normotensive	39(65.0%)	21(35.0%)		
Status of DM				
Diabetic	100(84.0%)	19(16.0%)	7.95	0.005*
Non-Diabetic	40(65.6%)	21(34.4%)		
Status of Thyroid abnormalities				
Hypothyroidism	44(66.7%)	22(33.3%)	7.44	0.006*
Hyperthyroidism	96(84.2%)	18(15.8%)		

*=Significant, P<0.05 is considered a level of significance.

Table 8. Distribution of the respondents according to their cervical cancer-related factors, associated with Cervical Cancer (n=180)

Variables	Cervical Cancer		χ^2	p-value*
	Present n(%)	Absent n(%)		
Number of respondents heard about cervical cancer				
Yes	138(86.3%)	22(13.8%)	59.8	0.000*
No	2(10%)	18(90%)		
Number of respondents introducer of cervical cancer				
Doctor	40(97.6%)	1(2.4%)	78.8	0.000*
Another medical professional	49(86%)	8(14%)		
Relatives (besides husband)	29(93.5%)	2(6.5%)		
Social media	5(62.5%)	3(37.5%)		
Colleagues	11(84.6%)	2(15.4%)		
Husband	4(40%)	6(60%)		
Number of respondents heard about cervical cancer screening				
Yes	108(89.3%)	13(10.7%)	28.14	0.000*
No	32(54.2%)	27(45.8%)		
Number of respondents underwent cervical cancer screening				
Yes	27(79.4%)	7(20.6%)	0.065	0.799
No	113(77.4%)	33(22.6%)		
Number of respondents distribution of screening				
VIA test	13(81.3%)	3(18.8%)	0.144	0.986
Pap-smear test	10(76.9%)	3(23.1%)		
HPV test	4(80%)	1(20%)		
Number of respondents know about HPV vaccine				
Yes	101(87.8%)	14(12.2%)	18.6	0.000*
No	39(60%)	26(40%)		
Number of respondents have taken HPV vaccine				
Yes	62(95.4%)	3(4.6%)	18.25	0.000*
No	78(67.8%)	37(32.2%)		
Number of respondents menstrual cycle status				
Regular	21(61.8%)	13(38.2%)	6.293	0.043*
Irregular	58(80.6%)	14(19.4%)		
Menopause	61(82.4%)	13(17.6%)		
Number of respondents have vaginal discharge				
Yes	53(100%)	0(0.0%)	21.46	0.000*
No	87(68.5%)	40(31.5%)		
Number of respondents have concern genital hygiene during menstruation				
Yes	70(89.7%)	8(10.3%)	11.4	0.001*
No	70(68.6%)	32(31.4%)		
Number of respondents have concern genital hygiene in a normal day				
Yes	49(96.1%)	2(3.9%)	13.79	0.000*
No	91(70.5%)	38(29.5%)		
Number of respondents duration of cervical cancer				

<6 years	98(71.0%)	40(29.0%)	15.65	0.000*
≥6 years	42(100%)	0(0.0%)		
Number of respondents distribution of treatment				
Surgery	18(94.7%)	1(5.3%)	163.5	0.000*
Surgery with CT	48(100%)	0(0.0%)		
Surgery with RT	32(100%)	0(0.0%)		
Surgery with CT & RT	33(100%)	0(0.0%)		
Only CT & RT	7(100%)	0(0.0%)		

*=Significant, P<0.05 is considered as a level of significance.

Table 9 Distribution of the respondents according to their psychological factors, associated with musculoskeletal disorders (n=180)

Variables	Cervical Cancer		χ^2	p-value*
	Present n(%)	Absent n(%)		
Number of respondents gets bored				
Yes	95(83.3%)	19(16.7%)	5.552	0.018*
No	45(68.2%)	21(31.8%)		
Number of respondents afraid about going to bad				
Yes	82(78.8%)	22(21.2%)	0.163	0.687
No	58(76.3%)	18(23.7%)		
Number of respondents feel happy most of the time				
Yes	67(75.3%)	22(24.7%)	0.635	0.426
No	73(80.2%)	18(19.8%)		
Number of respondents feel helpless				
Yes	64(80.0%)	16(20.0%)	0.411	0.521
No	76(76.0%)	24(24.0%)		
Number of respondents get restless and fidgety				
Yes	112(84.8%)	20(15.2%)	14.318	0.00*
No	28(58.3%)	20(41.7%)		
Number of respondents feel full of energy				
Yes	39(62.9%)	23(37.1%)	12.107	0.001*
No	101(85.6%)	17(14.4%)		
Number of respondents frequently feel like crying				
Yes	27(73.0%)	10(27.0%)	0.622	0.430
No	113(79.0%)	30(21.0%)		

*=Significant, P<0.05 is considered a significance level.

The analysis indicates that there are associations between cervical cancer and multiple variables such as marital status, occupation of husbands, monthly income, parity, HTN, DM, thyroid abnormalities, source of knowledge about cervical cancer, knowledge of cervical cancer screening & HPV vaccine, HPV vaccination status, menstrual cycle status, vaginal discharge, genital hygiene during menstruation & in a normal day, duration of cervical cancer & treatment and few psychological states of the respondents which are highly significant as P<0.001 respectively (Table-6, 7, 8 & 9)

CONCLUSIONS

Almost eight in every ten female respondents are suffering from Cervical Cancer. Monthly income, parity, blood pressure, blood sugar, thyroid abnormalities, hypertension, HPV, Vaginal discharge, genital hygiene, and depression are the major associated factors for Cervical Cancer. About 67.2% (n=121) of respondents knew about cervical cancer screening & 18.9% (n=34) of total respondents underwent cervical cancer screening. Those who underwent screening among them 8.9% (n=16) did VIA test, 7.2% (n=13) did PAP-smear test & 2.8% (n=5) did HPV test. 77.8% (n=140) of respondents had had cervical cancer. Among them, 76.7% (n=138) had been suffering for less than six years, and 23.3% (n=42) had been suffering for 6/more than six years. 43.3% (n=78) of respondents were concerned about genital hygiene during menstrual days, while 28.3% (n=51) had a concern during normal days. In this study-value for monthly income was found 4.64, P<0.001 and 95% CI (5245.8; 24475.6), Parity & age of first delivery was found 8.9 & 7.24, P<0.001 and 95% CI (0.9; 1.35) & 95% CI (7.5; 13.1). The last BP (systolic& diastolic) of the respondents was 2.62 & 3.37, P<0.001 and 95% CI (1.97; 13.89) & 95% CI (2.16; 8.27). In the case of the duration of cervical cancer, it was found to be 10.89, P<0.001, and 95% CI (4.01; 5.79).

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